International Journal of Business and Society, Vol. 15 No. 1, 2014, 65 - 80

ESTIMATING THE CHOICE OF ENTREPRENEURSHIP AS A CAREER: THE CASE OF UNIVERSITI UTARA MALAYSIA

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ABSTRACT

Using of the case of Universiti Utara Malaysia (UUM), this study aims to estimate the factors that influence the entrepreneurship career choice among UUM students and graduates, in particular, the effect of educational factor on the probability that a graduate will choose entrepreneurship as his or her career. Results of descriptive statistics reveal that the tendency of choosing entrepreneurship as career is high among the sample and it is associated with gender, ethnic groups, degree, CGPA and family entrepreneurship experiences. Nevertheless, the estimated Multinomial Logit model indicates that the significant factors are entrepreneur education, family entrepreneurship experiences and economic factor (proxy by intention to start a business upon graduation). The significant of educational factor implies that the educated entrepreneur can be cultivated and this empirical result supports the current policy of Malaysia government to grow the graduate entrepreneur through education. The findings of this paper suggest that entrepreneurship should be viewed as an important career choice among the university students and graduates. This career choice is seen as a choice that could improve the economy performance, particularly to the labor market because the entrepreneurship activity is able to create more jobs and prosperous.

Keywords: Entrepreneurship; Career Choice; Multinomial Logit Model.

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1. INTRODUCTION

Empowered with a combination of skills, motivation, ideas and opportunities, undergraduate students (or graduates) are expected to be more than able to establish productive and creative in entrepreneurial activities. Entrepreneurship will also able to change them from being "job seeker" to "job creator". Entrepreneurship is also crucial in changing people from being socially dependent to self-sufficient. Moreover, many self-employed graduates' also contribute to the upkeep of their families, sometimes playing the role of breadwinners.

The concept and meaning of entrepreneurship is changing and becoming complex due the change in the economic environment and social interpretation. For instance, since the financial crisis of 1997 the graduate unemployment problem in Malaysia is increasing and persistent (Lim, Rich & Harris, 2008); and in this context, the career choice of entrepreneurship (i.e., being self-employed) is showing its significance in solving the graduate unemployment problem.

According to the published employment statistics on 2011, the number of employment in Malaysia has increased. However, the number of unemployment also increased to 421,800 persons (January 2011) compared to 387,900 persons (January 2010). The unemployment rate is remaining unchanged at 3.4 percent in 2010 and January 2011 (Department of Statistics Malaysia, 2011). Relating to the employment status of graduates in Malaysia, the Tracer Study of year 2010 conducted by the Ministry of Higher Education of Malaysia (MoHE) found that the employed graduates are 50.4 percent, furthering studies 16.6 percent, graduate who are in developing skills is about 1.4 percent, waiting for work placement about 7 percent and graduates who are unemployed are 24.6 percent (Table 1). In terms of number, there are 42, 944 unemployed graduates.

Table 1: Employability status of local graduate respondent, 2010

Employability status	(%)	Total (000)
Employed	50.4	87, 886
Furthering studies	16.6	28, 921
developing skills	1.4	2, 427
Waiting for work placement	7.0	12, 250
unemployed	24.6	42, 955
Total	**100**	**174, 439**

Source: MoHE Graduates Tracer Study, 2010

In this context, involvement in the entrepreneurial activity could be one of the best strategies to overcome the graduate unemployment problem. In addition, it will increase the economic performance in this country. As suggested by Kupets (2006), unemployment among the fresh graduates is increasing in the current economic environment and to overcome the unemployment problem, universities are seen to be playing a leading role in the development of student entrepreneurs. For instance, introducing entrepreneurship courses to equip the

Table 2: Employment status and sectors of local graduates' respondent, by HEI, 2010

Higher education institute (HEI)/ **Employment Status**	**Public HEI**	**Private HEI**	**Polytechnics**	**Community College**	**Human Resources**	**Total**
Permanent	61.3% (29,878)	70.2% (15,611)	48.1% (6,444)	37.2% (1,281)	65.9% (56)	60.6% (53,270)
Contract	20.2% (9,816)	15.1% (3,352)	22.9% (3,071)	19.1% (659)	28.2% (24)	19.3% (16,922)
Temporary	16.1% (7,855)	12.2% (2,711)	24.7% (3,307)	35.9% (1,236)	5.9% (5)	17.2 (15,114)
Self-employed	**1.4% (690)**	**1.2% (276)**	**1.9% (255)**	**4.7% (162)**	**-**	**1.6% (1,383)**
Working with family	1.0% (470)	1.3% (299)	2.4% (322)	3.1% (106)	-	1.4% (1,197)
Total	100% (48,709)	100% (22,249)	100% (13,399)	100% (3,444)	100% (85)	100% (87,886)
Higher Education Institute(HEI)/ **Employment Sector**	**Public HEI**	**Private HEI**	**Polytechnics**	**Community College**	**Human Resources**	**Total**
Government	31.3% (15,266)	34.5% (7,680)	10.5% (1,412)	4.1% (142)	1.2% (1)	100% (24,501)
Statutory Bodies	5.3% (2,558)	2.0% (447)	4.4% (583)	1.7% (59)	1.2% (1)	4.2% (3,648)
Private (Multinational)	14.6% (7,128)	15.1% (3,370)	13.6% (1,826)	7.5% (258)	31.8% (27)	14.3 (12,609)
Private (local)	39.0% (18, 982)	38.2% (8,495)	56.8% (7,610)	64.5% (2,222)	61.2% (52)	42.5% (37,361)
Own Business	**4.3% (2,089)**	**4.9% (1,090)**	**8.4% (1,129)**	**15.5% (533)**	**-**	**5.5% (4,841)**
Government Linked Companies	3.0% (1,476)	2.5% (533)	3.0% (397)	1.7% (57)	2.4% (2)	2.8% (2,485)
Non-Government Organization	1.4% (695)	1.8% (395)	2.1% (281)	3.0% (105)	1.2% (1)	1.7% (1,477)
Others	1.1% (515)	1.0% (219)	1.2% (161)	2.0% (68)	1.2% (1)	1.1% (964)
Total	100% (48,709)	100% (22,249)	100% (13,399)	100% (3,444)	100% (85)	100% (87,886)

Source: MoHE, Tracer Study, 2010.

students with the skills, values, and behavior to undertake business endeavours successfully in the future. Indeed, the Malaysia governments are aware of the importance of entrepreneurship activities among university students. According to Busenitz, Gomez and Spencer (2000), since 1995, the Malaysian government has made several commendable approaches and taken important measures to promote entrepreneurship activities among graduates. However, the achievement may not as satisfactory as expected, as hinted by the statistics in Table 2.

From Table 2, there are a total of 87, 886 graduates and only 1.6 percent graduates are self-employed. By the employment sector (among the employed graduates), the involvement of graduates in entrepreneurship is still low; it is only 5.5 percent graduates running their own business (doing the entrepreneurial activities). Most of graduates are like to hunting the jobs compared to create or doing the entrepreneurial activities.

This low level of entrepreneurship involvement may tamper the Malaysia government's policy in encouraging more educated entrepreneurs. The National Higher Education Action Plan Phrase Two (2011-2015), has placing the entrepreneurial activity as catalyst of economic growth through improving innovation, creativity and competitiveness.

In view of Malaysia government's vision to transform its economy from knowledge-based to innovation in its aspiration to be the high income country by 2020, the students of higher education institutions need to be exposed and applied the values and entrepreneurial skills. As such, it is very imperative to study what are the underlying factors that influence the career choice of students on entrepreneurship. The estimation of these underlying factors will help in providing valuable information for formulating policy to encourage entrepreneurship career choice among university students. Econometrics studies on entrepreneurship career choice among university students are clearly needed in the Malaysia context.

This paper aims to fill the gap to estimate what are the factors that influence the university students' career choice on entrepreneurship using the case of Universiti Utara Malaysia students (including those who already started their entrepreneurship activities in campus or nearby campus).

This paper is organized into five sections. This present section introduces briefly the background, problem statement and significant of this study. The second section presents the literature review. The data and methodology are described in the third section. The results of this paper are presented in fourth section. The fifth section concludes the findings of this paper.

2. LITERATURE REVIEW

2.1. Entrepreneur & Entrepreneurship

Entrepreneur can be defined as someone who exercises initiative by organizing a venture to take benefit of an opportunity and as, the decision maker, decides what, how and how much a good or service will be produced. According to Timmons and Spinelli (2003), entrepreneur is an innovator or developer who recognizes and also seizes opportunities, converts those

opportunities into a workable or marketable idea, adds value through time, effort, money or skills, assumes the risks of the competitive marketplace to implement these ideas and realizes the rewards from these efforts.

Meanwhile, entrepreneurship also refer to the capacity and willingness to undertake conception, organization and management of a productive venture with all attendant risks, while seeking profit as a reward. According to Davidsson & Wiklund, (2001); Littunen, (2000); Shane and Venkataraman (2003) entrepreneurship has always given emphasis in the areas of business research. Entrepreneurial activities is an important stake in economic development, economic competitiveness (European Commission, 2002), job opportunities and will helping to improving the society interest (Linan, Rodriguez & Rueda, 2005).

In Malaysia, on 2011, the number of unemployed persons has been increased to more than four hundred thousand and the unemployment rate is persistent at 3.4 percent (Department of Statistics Malaysia, 2011). In terms of fresh graduates, on 2010, around one-fifth of them are unemployed. Among those who are employed, it is only 1.6 percent of graduates are self-employed. By employment sectors, around 5% graduates are involved in entrepreneurial activity (see Table 2). These statistical facts highlight the low involvement of graduates in entrepreneurial activity despite the high rate of graduate unemployment.

In development country such as Malaysia, entrepreneurial activities are important. It was shown by policies and supporting mechanisms for entrepreneurs such as funding, infrastructure and also business advisory services. Accordingly, the Ministry of Higher Education (2011) has formulated a policy of "Entrepreneurship Development Policy Institute of Higher Education" to promote education and entrepreneurship development that is organized and holistic.

This policy is established to increase the number of entrepreneurs among graduates with the values, thoughts and attributes of entrepreneurship as a catalyst for the achievement of the economic transformation of the economic middle to high income economies and also at the time can produce academics with values, skills, thinking and attribute of entrepreneurship (Ministry of Higher Education, 2011). Empirically, research conducted by Manjit, Shaufique and Shoaib (2011) has founded that Malaysia's students who want to involve into the entrepreneurial field had a lot of challenges such as lack of capital, not a risk taker, limited business network and also lack of knowledge to start a business.

2.2. Entrepreneurship and Education

Gorman and Hanlon (1997) showed that the entrepreneurial attributes can be positively influenced by educational programs. Kolvereid and Meon (1997) demonstrated a connection between education in entrepreneurship and entrepreneurial behavior which is similar to the study by Galloway and Brown (2002). Henderson and Robertson (2000) found that an effective education on entrepreneurship can be a factor that leads students toward an entrepreneurial career. Mohan-Neill (2001) found that students who are exposed to entrepreneurship education have more favorable views of small businesses.

Waldmann (1997) indicated that an entrepreneurship education at the high school level will have a great impact on the students who are seriously inclined towards starting a business after graduation. Kolvereid and Moen (1997) pointed out that entrepreneurship graduates have stronger entrepreneurial intentions than other business graduates. In their view, entrepreneurship graduates are the most suitable to involve the entrepreneurial activity and choose entrepreneur as their career.

Pages and Poole (2003) noted that college and universities as well as a small business development centers commonly offer training courses which are typically available to small groups of entrepreneurs, teaching how to start a business, how to develop and implement a business plan, and variety of aspects of the small business development process. Syahrina and Armanurah (2004) found that statement that "entrepreneurs can be successfully trained" is an accepted statement and principle in academic circles. But, this statement is still contestable in the business press.

In Universiti Utara Malaysia (UUM), the entrepreneurship programmed is conducted under the Co-operative and Entrepreneurship Development Institute (CEDI) and the role of the institute is to develop and train the people in the entrepreneurial context. Habshah, Faudziah and Rosli (2005) noted that all undergraduate students in UUM receive some form of entrepreneurship knowledge through four initiatives to stimulate their interest in entrepreneurial activities.

In short, literature clearly suggests the important of education and other factors such as financing, skills, thinking, and risk taker are influencing students to make the choice of entrepreneur as their career. However, the estimation of the influence of these factors are not conducted in terms of probability choice modeling. This paper aims to investigate the career choice of entrepreneurship among university students using multinomial logit model.

3. DATA AND METHODOLOGY

3.1. Data

The targeted population of this study is the final year students in Universiti Utara Malaysia (UUM) on 2010; and also graduates of UUM who are running their business activities in or near the campus. The participation was voluntary. This study has to use the convenient sampling design due to unavailable of population frame (on the ground of data confidentiality).

The data was collected through self-administered questionnaires. The totals of respondents are 200 persons. The survey was conducted from March to April 2010. It was successfully collected a sample of 150 UUM students and 50 graduates.The questionnaire consists of the three parts. First, it is regarding respondent's socio-demography information. Second, it is regarding with respondents' attitude towards of entrepreneurship. Third, it is related with economic factors towards entrepreneurship.

3.2. Methodology

The descriptive statistics such as mean and standard deviation, two-way table, are used to analysis the career choice of entrepreneurship of respondents and variables that associated with it. The variables are career choices, family experiences, prefer to be an employer, creativity, responsible person, lessons from failures, job creation, entrepreneurship program, saving, somebody and financial from family and other socio- demographic variables. Please refer to the Appendix 1 for the definition and measurement of variables.

In addition, the multinomial logit model is also used to estimate the effects of various variables on the tendency of career choice of entrepreneurship. The choice of multinomial logit model is mainly on statistical justification. The dependent variable (choice of entrepreneur as career) is a polychotomous variable (which is measured in likert-scale of strongly disagree, disagree, not sure, agree, strongly agree). Thus, multinomial logit model is a suitable method of analysis (Maddala, 1983).

This latent tendency of choice of entrepreneur as a career is associated with individual characteristics of the respondents (x_i.) Let y* represent this latent variable and assume that y* is a linear function of x_i, then,

$$y_i^* = \sum_{i=1}^{n} \beta x_i + u_i \quad ....(1)$$

where, y* = the unobserved tendency to be entrepreneur as a career
x = the individual characteristics
u = the error term

If Y is the random variable that represent the entrepreneur as a career outcomes, j, of the respondent, where j=0 if strongly disagree or disagree or not sure, j=1 if agree, and j=2 if strongly agree. Assume that the error is logistically distributed; we have the following Multinomial Logit Model:

$$\Pr ob(Y = j)\ Pj = \frac{\exp(\beta_j' Z_j)}{1 + \sum_{j=1}^{3} \exp(\beta'_j Z_i)} \quad ...(1)$$

$$\Pr ob(Y = \mathrm{O})\ P_0 = \frac{1}{1 + \sum_{j=1}^{3} \exp(\beta'_j Z_i)} \quad ...(2)$$

For j=0, 1, and 2

The Prob(Y=0) represents no tendency to choose entrepreneur as career, prob(Y=1) represents unsure on choosing entrepreneur as a career, prob(Y=2) represents a tendency to choose entrepreneur as a career and finally, prob(Y=3) represents have a strong tendency on choosing entrepreneur as a career. The maximum likelihood parameters estimates (MLE) are obtained by maximize the following log likelihood function:

$$L(\beta_1,\ldots,\beta_j \mid y,z) = \prod_{i=1}^{n} P_i = \prod_{j=0}^{2} \prod_{y_i=j}^{n} \frac{\exp(\beta'_j Z_i)}{\sum_{j=0}^{2} \exp(\beta'_j Z_i)} \quad \ldots(3)$$

where *n*=sample size

The model will be estimated with the robust variance estimates (Huber/White/sandwich estimator of variance).

4. RESULTS

The results of this paper are divided into two parts, i.e., descriptive statistics (which consists of socio-demographic characteristics of respondents and entrepreneurship career choice tendency), and the estimated Multinomial Logit Model (which estimates the factors that influence the career choice of entrepreneurship).

4.1. Results of Descriptive Statistics

Table 3 presents the characteristics of the respondents of this study. There are 42.0 percent male and 58.0 percent are female. As expected, most of the respondents is single. In terms of ethnic group, 68.5 percent respondents are Malay, 18.0 percent are Chinese and 13.5 percent are India. In terms of age, respondent between 18 years until 23 years are 25.5 percent meanwhile respondents who are between 24 until 29 years old are 45.0 percent. Those are over 30 years old are 29.0 percent.

These characteristics appear similar to the well known population characteristics (such as female and Malay are the majority). Thus, the convenient sample of this study appears to have minimum level of representativeness to the targeted population.

Table 4 and 5 present the career choice tendency of entrepreneur and how this choice tendency related to some of socio-demographic characteristics. From Table 4, overall, it is found that most of the respondents has tendency to be entrepreneurship career choice (more than 90%). It is only 1% of the respondents who have low tendency to choose entrepreneur as their career choice (with 6% unsure about their entrepreneurship career choice). Thus, the sample of this paper consists of a group of respondent with tendency to be entrepreneur.

Table 3: Characteristics of respondents

Variable	Category	(%)
Gender:	Male	42.0
	Female	58.0
Ethnicity:	Malay	68.5
	Chinese	18.0
	India	13.5
Marital status:	Single	72.0
	Married	28.0
Age:	18-23	25.0
	24- 29	45.0
	30-34	27.0
	>35	2.0
Type of degree:	Degree	68.0
	Diploma	32.0

Table 4: Entrepreneurship career choice tendency and socio-demographic characteristics

Entrepreneurship career choice tendency	Gender			Ethnicity			Degree	
	Overall (%)	Male (%)	Female (%)	Malay (%)	Chinese (%)	Indian (%)	Non-entrepreneur (%)	Entrepreneur (%)
Strongly disagree	0.5	0	0	0	0	0	5	0
Disagree	0.5	1.2	9.0	7.0	2.8	0	5	0
Not sure	6.0	2.4	8.6	5.9	8.3	3.7	6.3	0
Agree	49.7	48.8	50.0	53.7	38.9	44.4	48.9	66.7
Strongly agree	43.2	47.60	40.5	39.7	50.0	51.9	43.7	33.3

In terms of relations of socio-demographic characteristics to career choice tendency of entrepreneurship, male are found to have higher tendency (47.6 percent) to choice entrepreneurship as career compared to female (40.5 percent). By ethnic groups, result reveals that Indian has the highest tendency (96.3%); whereas the Chinese has the lowest (88.9%). The striking finding is the respondents of entrepreneurship are found to have much higher tendency to choose entrepreneur as career.

By the mean of entrepreneur career choice tendency, from Table 5, it is found that mean of the male tendency to be entrepreneur is higher than female (which is 4.4286 compared to 4.2931). Mean category of age of more than 35 years old is 4.7500 (the highest) compared to other age categories. The ethnic group of Indian is showing 4.4815 mean tendency which is higher than Malay (which is 4.3285) and Chinese (which is 4.3333). The intention to start business upon graduate and family experiences in entrepreneurship is found to be positively related to the entrepreneurship career choice.

Table 5: Entrepreneurship career choice tendency and socio-demographic characteristics

	Entrepreneur career choice tendency	
	Mean	**Std. Deviation**
Gender:		
Male	4.4286	0.60690
Female	4.2931	0.69804
Age:		
18-23	4.2910	0.78215
24-29	4.3626	0.64147
30-34	4.3519	4.00000
>35	4.7500	0.50000
Ethnicity:		
Malay	4.3285	0.61965
Chinese	4.3333	0.86189
Indian	4.4815	0.57981
CGPA:		
2.00- 2.50	4.5000	0.51075
2.51- 2.99	4.3521	0.58794
>3.00	4.3143	0.40000
Start business after graduate:		
1 (Strongly Disagree)	-	-
2 (Disagree)	-	-
3 (Not sure)	3.0833	0.19300
4 (Agree)	4.0707	0.06461
5 (Strongly agree)	4.8372	0.04004
Family experience:		
1 (Strongly disagree)	-	-
2 (Disagree)	-	-
3 (Not sure)	1.5800	0.229
4 (Agree)	1.8500	0.072
5 (Strongly agree)	2.0700	0.081

The interesting finding is academic achievement appears to be negatively related to the entrepreneurship career choice tendency. Respondents who have the lowest score of CGPA are found to have the highest tendency to be entrepreneur as career. This result implies that entrepreneur career is not a preferred choice (relatively) to the high achievement students.

4.2. Results of the estimated Multinomial Logit Model

Table 6 presents the estimated Multinomial Logit Model. To evaluate the fit of the estimated model to the data, we used the pseudo R2, overall fit test and percentage correctly predicted. It is found that the estimated model has high value of pseudo R2, significant overall fit test, and high percentage of correctly predicted. Thus, it can be concluded that the estimated model has high fit with the data.

Table 6: The estimated Multinomial Logit Model

Variables	Agree vs Strong disagree/ disagree/unsure		Strongly agree vs Strong disagree/disagree/unsure	
	Estimated coefficient	**Robust Standard error**	**Estimated coefficient**	**Robust Standard error**
Gender: Female	0.099	1.145	0.308	1.183
Ethnic group: Malay	-2.492	2.001	-2.587	2.022
Marital: Dsingle	-0.867	2.148	-0.839	2.178
Age	1.695	1.381	1.819	1.396
CGPA	-0.147	0.928	-0.578	0.957
Education: Ddegree_Entrep[3]	17.289	1.148***	15.567	0.000
Ei5_Start Business after graduation	2.698	1.079**	3.991	1.127***
Ee6_Family Experience	2.399	1.106**	2.538	1.128**
Goodness of fit statistics				
Pseudo R_Square	0.537	-	-	-
Overall fit test	0.000	-	-	-
% Correctly predicted	71.9%	-	-	-

Notes: 1. ***, ** and * represent significant at 1%, 5% and 10% respectively. 2. The estimated results of other insignificant variables are omitted from the table (see Appendix 2). 3. Base group is all the other non-entrepreneur degree in UUM such as business management, IT, accounting and other business related degree.

The estimated multinomial logistic model reveal that the socio-demographic factors (gender, ethnic group, marital status, age) do not have significant influence on the career choice of entrepreneurship. However, consistent with the literature, the education factor is found to have a positive and significant effect on this entrepreneurship career choice. The probability of respondents with entrepreneurship degree to choose the entrepreneur as career is higher than the respondents with non-entrepreneurship degree.

In addition, family background on the entrepreneurship is also an important factor. The respondents who have more experience in their family entrepreneurship activities have higher odds of choosing entrepreneur as their career. Another significant factor is the intention to start a business upon graduates. This factor has positive and significant effect on the probability to choose entrepreneur as career.

Intuitively, the significant of this factor may due to the fact that respondents who have high intention to start a business upon graduation are those who have better access to the information,

capital and other facilities that ease the establishing of own business. Hence, it is not surprising to find that the intention to start business upon graduation, as proxy to economics factor, has significant and positive effect on probability to choose entrepreneur as career.

5. CONCLUSION

The most important result of this paper is the analysis, either descriptive or estimated model, revealed that education is the important factor that influences the university student's career choice on entrepreneurship. This result is consistent with the previous studies and its implication is indeed, entrepreneurship can be cultivated through education. Thus, this paper support the policy of the Ministry of Higher Education on cultivating educated entrepreneur, as stated in its PSPTN plan. For instance, the Entrepreneurship Development Institutions of Higher Education, a policy aims to promote the education and development entrepreneurship among institutions of higher learning (PSPTN, 2007).

However, as indicated by the descriptive analysis, high academic achievement students is relatively less likely to choose entrepreneur as career and thus, it is suggested that more entrepreneurship education should be embedded into the curriculum. This will help to increase the number of high quality of educated entrepreneur in Malaysia.

Based on the results of the analyses, we also can conclude that the family experiences and economic factors are considered as important predictors of the inclination of students (and graduates) towards engaging in entrepreneurship. This finding supports previous studies that have consistently found that the family experiences such as early exposure to a family-owned company has an influence on the intention towards entrepreneurship (see Krueger, Reilly & Carsrud, 2000; Drennan, Kennedy and Renfrow, 2005).

Evans and Jovanovich (1989) stated that individuals who were born with initial amounts of business thinking have the ability to develop the intention towards entrepreneurship career. Gray (2002) noted that people from strongly supportive families are already starting with the resources and capabilities that will stand them in good stead if they wish to pursue a career as an entrepreneur. From their experiences, they much know the process of how business goes, and also they already built the skill to perceive and exploit business opportunities, which is have been identified with the characteristic such as knowledge of the market, Jovanovic (2009). Their findings are supported by the present study.

This experience encourages the respondents to continue with their business and help them to be more mature in business. Kyro (2003) suggested that a successful entrepreneur need to not only acquire knowledge of the business world, but must also possess a set of generic attributes, skills and behaviors related to entrepreneurship. There is still much more to be learned to really understand the processes leading to the decision to become an entrepreneur.

Nevertheless, the results presented in this paper provide some understanding of the factors influencing the decision to become an entrepreneur among university students and graduate using convenience sample. Thus, the results are exploratory and subjected to validation by future studies using more representative samples. Nevertheless, our study has made modest contribution in the effort to predict and develop entrepreneurs in the country.

ACKNOWLEDGEMENTS

We would like to thanks the anonymous referee for his or her construction comments which have improved this paper substantially. However, we alone are responsible for any remaining error that it might exist.

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APPENDICES

Appendix 1: Definition and Measurement of Variables

Code of variable	Definition	Measurement
Gender	Gender by born	0-Male 1- Female
6-Ethnicity	5-Respondents Races	1- Malay 2- Chinese 3- Indian 4- Others
Marital Status	Respondents Sex	1- Single 2- Married
Age	Respondents Age	1- 18-23 years old 2- 24-29 years old 3- 30-35 years old 4- >36 years old
CGPA	Cumulative Grade Point Average of respondents	1- >2.00 2- 2.00- 2.50 3- 2.51- 2.99 4- 3.00- 3.49 5- >3.50
Entrepreneurial as a career	Tendency to choose entrepreneur as career	1- Strongly Disagree 2- Disagree 3- Not Sure 4- Agree 5- Strongly Agree
Run the business because learned through family experiences in business	Respondent gain the business experiences by involving family business	1- Strongly Disagree 2- Disagree 3- Not Sure 4- Agree 5- Strongly Agree
Education	Course/Program that's respondents has taken	1- Degree of Entrepreneur 2- Degree of non-entrepreneur
Started the business because job creation	The person who are involving the entrepreneurship field able to hire workers and create job to them	1- Strongly Disagree 2- Disagree 3- Not Sure 4- Agree 5- Strongly Agree

Appendix 2: SPSS Output of the Estimated MNL Models

Parameter Estimates

Entrepreneur as a career[a]		B	Std. Error	Wald	df	Sig.	Exp(B)
Agree	Intercept	-5.590	6.328	.780	1	.377	
	Age_asal	1.695	1.381	1.507	1	.220	5.446
	CGPA	-.147	.928	.025	1	.874	.863
	Dfemale	.099	1.145	.008	1	.931	1.105
	DdegreeEntrep	17.289	1.148	226.979	1	.000	3.225E7
	Dmalay	-2.492	2.001	1.550	1	.213	.083
	Dsingle	-.867	2.148	.163	1	.686	.420
	ei1	-.449	.766	.344	1	.557	.638
	ei2	-.775	.794	.953	1	.329	.461
	ei5	2.698	1.079	6.249	1	.012	14.855
	ei3	1.314	.842	2.436	1	.119	3.721
	ee6	2.399	1.106	4.707	1	.030	11.007
	ee7	1.206	.821	2.155	1	.142	3.339
	ee8	.007	.963	.000	1	.994	1.007
	ee9	-1.426	1.236	1.329	1	.249	.240
	ee10	.891	1.088	.671	1	.413	2.438
	ee11	-1.541	1.206	1.633	1	.201	.214
	em12	-1.687	1.332	1.606	1	.205	.185
	em13	1.747	1.167	2.239	1	.135	5.735
	em14	.498	1.378	.131	1	.718	1.646
	em15	.499	1.105	.204	1	.652	1.647
	em16	-.026	1.240	.000	1	.983	.975
	Income_Actual_Exp	.515	.821	.392	1	.531	1.673
	Experience	-.079	.251	.101	1	.751	.924
Strongly Agree	Intercept	-14.129	6.687	4.464	1	.035	
	Age_asal	1.819	1.396	1.697	1	.193	6.165
	CGPA	-.578	.957	.365	1	.545	.561
	Dfemale	.308	1.183	.068	1	.795	1.360
	DdegreeEntrep	15.567	.000	.	1	.	5764374.908
	Dmalay	-2.587	2.022	1.637	1	.201	.075
	Dsingle	-.839	2.178	.148	1	.700	.432
	ei1	-.880	.818	1.158	1	.282	.415
	ei2	.064	.825	.006	1	.938	1.067
	ei5	3.991	1.127	12.540	1	.000	54.113
	ei3	2.091	.887	5.554	1	.018	8.094
	ee6	2.538	1.128	5.057	1	.025	12.651
	ee7	1.070	.852	1.578	1	.209	2.914
	ee8	.229	.992	.054	1	.817	1.258
	ee9	-2.020	1.278	2.496	1	.114	.133
	ee10	1.810	1.171	2.391	1	.122	6.109
	ee11	-1.527	1.255	1.481	1	.224	.217
	em12	-1.708	1.367	1.561	1	.211	.181
	em13	1.517	1.209	1.575	1	.209	4.561
	em14	.882	1.413	.390	1	.532	2.417
	em15	1.073	1.160	.855	1	.355	2.924
	em16	.173	1.285	.018	1	.893	1.189
	Income_Actual_Exp	.580	.851	.465	1	.495	1.786
	Experience	-.086	.260	.108	1	.742	.918

Note: a. The reference category is: Strongly Disagree/Disagree/Not Sure.